REMARKS

This amendment is responsive to the Office Action dated April 25, 2003. Applicant has amended claims 1, 7, 9, 16, 23, 27, 28, 30-32, 34, 35, 37-39, 41 and 43. Claims 1-43 are still pending.

Objections to the Drawings

In the Office Action, the Examiner objected to the drawings because they do not include the reference sign (50) mentioned in the description at page 10, line 1.

Applicant respectfully points out that the mention of "(50)" in the description at page 10, line 1, is not a reference to any of the FIGS., but rather, a reference to a D50 illuminant condition. In order to further clarify this issue, Applicant has amended the specification at page 10, line 1, to more properly recite AdobeRGB(D50)~~(50)~~.

Objections to the Claims

In the Office Action, the Examiner objected to claims 27 and 34 as including inconsistent terminology. Whereas claims 27 and 34 recited AdobeRGB(50), the specification recites AdobeRGB(D50). Applicant has amended claims 27 and 34, consistent with the Examiner's suggestion, to recite AdobeRGB(D50).

Claim Rejections

In the Office Action, the Examiner rejected claims 1-43 under 35 U.S.C. 102(b) as being anticipated by Marsden et al. (US 6,340,975) (hereafter Marsden); and rejected claims 14-15 under 35 U.S.C. 103(a) as being unpatentable over Marsden in view of Cottone (US 6,522,313) (hereafter Cottone).

In response, Applicant has amended various claims to clarify that Applicant's invention makes use of a conversion of device-independent coordinates, i.e., from device-independent coordinates to corrected or adjusted device-independent coordinates. As discussed below, this feature is not disclosed or suggested in the applied references.

Device-independent coordinates, such as XYZ coordinates, L*a*b* coordinates, or the like, are conventionally thought to describe color independently of the rendering device. The XYZ and L*a*b* color coordinate systems were developed by the Commission Internationale de

l'Eclairage (CIE), and are still widely accepted in the art of color management to describe color independently of the actual rendering device, which relies on device-dependent color coordinates such as CMYK or RGB. The prior art (including the Marsden and Cottone references) generally does not contemplate the conversion of device-independent coordinates to corrected device-independent coordinates.

In stark contrast to these accepted CIE principles, as described in Applicant's specification, Applicant's experimental research in the field of soft proofing uncovered an apparent breakdown in color science as defined by the CIE standards. See page 7, lines 16-22. Accordingly, Applicant's invention is generally premised on the notion that device-independent coordinates **do not** accurately describe color independently of the rendering device. This is most apparent in soft proofing environments where hard copy proofs are rendered on display devices. Applicant's claimed invention recites the conversion of device-independent coordinates to corrected or adjusted device-independent coordinates.

Applicant respectfully traverses the pending rejections to the extent such rejections may be considered applicable to the amended claims. All pending claims recite or make use of a conversion of device-independent coordinates to corrected or adjusted device-independent coordinates. In this manner, Applicant's claimed invention runs counter to the industry standards, which presuppose that device-independent coordinates describe color independently of the rendering device. None of the applied references discloses or suggests a conversion of device-independent coordinates to corrected or adjusted device-independent coordinates, as recited in Applicant's claims. Accordingly, all pending claims should be in condition for allowance.

For example, claim 1 recites a method comprising obtaining a white point correction for a display device, obtaining a chromatic correction for the display device, and *generating corrected device-independent color coordinates for the display device based on device-independent coordinates associated with a hard copy, the white point correction and the chromatic correction.* Independent claims 30 and 37 include similar limitations.

None of the applied references discloses or suggests the generation of corrected device-independent color coordinates for the display device based on device-independent coordinates associated with a hard copy, the white point correction and the chromatic correction.

In particular, Marsden fails to disclose or suggest such features. Accordingly, the rejections of claims 1, 30 and 37 should be withdrawn.

Marsden is directed to gamut correction techniques that modify a process of converting from RGB to CMYK when the gamut of the printing device is not sufficient to accurately render some colors. Marsden does not disclose or suggest generating corrected device-independent color coordinates for the display device based on device-independent coordinates associated with a hard copy, the white point correction and the chromatic correction, as recited in Applicant's claims 1, 30 and 37.

Many of the passages of Marsden, cited by the Examiner, refer to FIG. 9 of Marsden. FIG. 9 of Marsden is provided below:

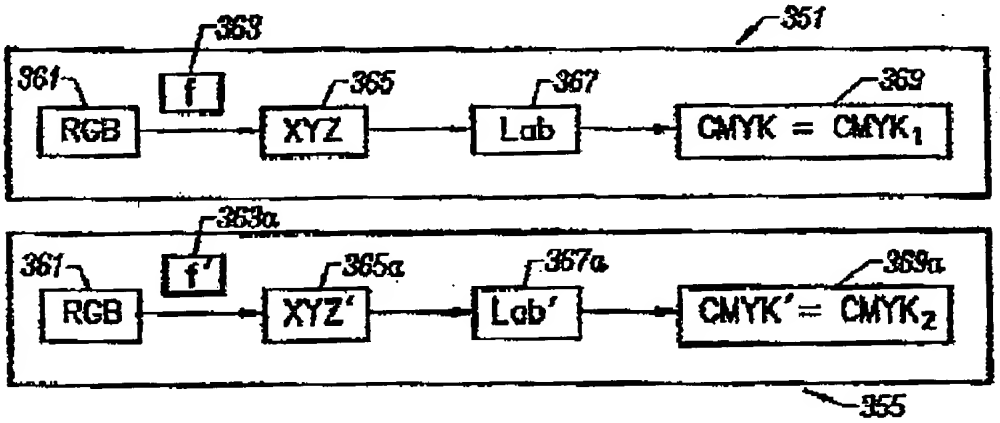

FIG. 9

As can be appreciated from FIG. 9, Marsden clearly does not disclose or suggest generating corrected device-independent color coordinates for the display device based on device-independent coordinates associated with a hard copy, the white point correction and the chromatic correction, as recited in Applicant's claims 1, 30 and 37. Instead, FIG. 9 and the corresponding description of Marden describes a first conversion from RGB to $CMYK_1$ (RGB->XYZ->Lab->$CMYK_1$), and a second conversion from RGB to $CMYK_2$ (RGB->XYZ'->Lab'->$CMYK_2$). Importantly, neither of these conversions described in Marsden involves the generation of corrected device-independent color coordinates for the display device based on device-independent coordinates associated with a hard copy, the white point correction and the chromatic correction.

As further described in Marsden, a composite separation table is generated that uses $CMYK_1$ for RGB values within the gamut, $CMYK_2$ for RGB values outside of the gamut and blended values of $CMYK_1$ and $CMYK_2$ for RGB values near the gamut surface. See FIG. 7 of Marsden. Accordingly, the techniques described by Marsden are not only different from the techniques recited in Applicant's claims, but are also driven by totally different problem, i.e., an insufficient gamut in a printing device rather than a breakdown in color theory.

In short, Applicant's claims recite or make use of a conversion from device-independent coordinates to corrected or adjusted device device-independent coordinates, e.g., a conversion from XYZ coordinates to XYZ' coordinates. As outlined in Applicant's specification, such a conversion can adjust for Applicant's perceived breakdown in color theory, as accepted by CIE standards. None of the applied references recognize this breakdown in color theory. Moreover, none of the applied references discloses or suggests a conversion from device-independent coordinates to corrected or adjusted device device-independent coordinates, as recited in Applicant's claims.

Applicant's other pending independent claims similarly recite a conversion of device-independent coordinates to corrected or adjusted device-independent coordinates. For example, independent claim 9 recites a method comprising determining device-independent coordinates defining a color on a hard copy, and *generating corrected device-independent coordinates using the determined device-independent coordinates, a white point correction and a chromatic correction.*

Independent claim 16 recites a method comprising converting device-dependent coordinates that define a color in a printing device to device-independent coordinates, *adjusting the device-independent coordinates using a white point correction and a chromatic correction,* and converting the adjusted device-independent coordinates to device-dependent coordinates that define a color in a display device.

Independent claim 23 recites a method comprising adjusting maximum phosphor values for a display device *based on corrected device-independent coordinates* so that a first color displayed on the display device matches white in a defined illuminant condition for a hard copy, and adjusting color settings *based on the corrected device-independent coordinates* so that a second color displayed on the display device matches a defined color in the defined illuminant condition.

Independent claim 28 recites a method comprising creating a first visual representation of an image on a hard copy, and creating a second visual representation of the image on a display device *including adjusting device-independent coordinates*, such that the first visual representation and the second visual representation have different device-independent coordinates, wherein both white point and saturated colors on the display device are a good visual match to those of the hard copy.

Independent claim 31 recites a system comprising a display device, a memory device, and a processor coupled to the display device and the memory device, wherein the processor adjusts maximum phosphor values of the display device *based on corrected device-independent coordinates* so that a first color displayed on the display device matches white in a defined illuminant condition for a hard copy, and adjusts color settings *based on the corrected device-independent coordinates* so that a second color displayed on the display device matches a defined color in the defined illuminant condition.

Independent claim 35 recites a system comprising a display device, a memory device, and a processor coupled to the display device and the memory device, wherein the processor receives a first set of image data from the memory device defining a first visual representation of an image on a hard copy, creates a second set of image data defining a second visual representation of the image for display on the display device *including adjusting first device-independent coordinates associated with the first set of image data to generate second device-independent coordinates associated with the second set of image data*, and displays the image on the display, wherein both white point and saturated colors of the image on the display are a good visual match to those of the hard copy.

Independent claim 37 recites a computer readable medium carrying program code that when executed receives a white point correction for a display device as input, receives a chromatic correction for the display device as input, and *generates corrected device-independent color coordinates for the display device based on device-independent coordinates associated with a hard copy, the white point correction and the chromatic correction.*

Independent claim 38 recites a computer readable medium carrying program code that when executed adjusts maximum phosphor values of the display device *based on corrected device-independent coordinates* so that a first color displayed on the display device matches white in a defined illuminant condition for a hard copy, and adjusts color settings *based on the*

corrected device-independent coordinates so that a second color displayed on the display device matches a defined color in the defined illuminant condition.

Independent claim 41 recites a computer readable medium carrying program code that when executed receives a first set of image data from the memory device defining a first visual representation of an image on a hard copy, creates a second set of image data defining a second visual representation of the image for display on the display device *including adjusting first device-independent coordinates associated with the first set of image data to generate second device-independent coordinates associated with the second set of image data*, and displays the image on the display, wherein both white point and saturated colors of the image on the display are a good visual match to those of the hard copy.

Independent claim 43 recites a computer readable medium carrying a color profile data structure thereon, the color profile data structure corresponding to a display device and *including device-independent illuminant condition values that do not correspond to actual device-independent illuminant conditions associated with the display device, such that colors rendered on the display device using the color profile data structure are visually equivalent to colors rendered on a printing device.*

Again, all of Applicant's independent claims recite or make use of a conversion of device-independent coordinates to corrected or adjusted device-independent coordinates. None of the applied references discloses or suggests a conversion of device-independent coordinates to corrected or adjusted device-independent coordinates. Accordingly, all pending claims should be in condition for allowance.

Many of Applicant's independent claims further recite the use of a white point correction and a chromatic correction in order to perform the conversion from a device-independent coordinates to corrected or adjusted device-independent coordinates. None of the applied references even disclose a conversion from device-independent coordinates to corrected or adjusted device-independent coordinates, much less the use of a white point correction and a chromatic correction to perform the conversion.

With respect to the pending dependent claims, Applicant does not acquiesce in the Examiner's characterization of the prior art relative to Applicant's invention. Applicant's dependent claims recite numerous features that are not disclosed or suggested in the applied references. Accordingly, Applicant further traverses the rejections of all the dependent claims.

Nevertheless, these rejections should be moot, in view of the allowability of the independent claims for the reasons set forth above.

Many of Applicant's dependent claims recite the use of correction matrices in order to perform the conversion from a device-independent coordinates to corrected or adjusted device-independent coordinates. None of the applied references even discloses a conversion from device-independent coordinates to corrected or adjusted device-independent coordinates, much less the use of matrices to perform the conversion.

Moreover, many of Applicant's dependent claims recite the use of different corrections matrices to adjust white point and chromaticities. For example, claim 2 recites the use of a white point correction matrix and a chromatic correction matrix. Again, none of the applied references even discloses a conversion from device-independent coordinates to corrected or adjusted device-independent coordinates, much less the use of matrices to perform the conversion. Clearly the use of a white point correction matrix and a chromatic correction matrix to perform a conversion from device-independent coordinates to corrected device-independent coordinates is not shown in the applied references.

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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